

IN THE CLAIMS

Please amend the claims as follows:

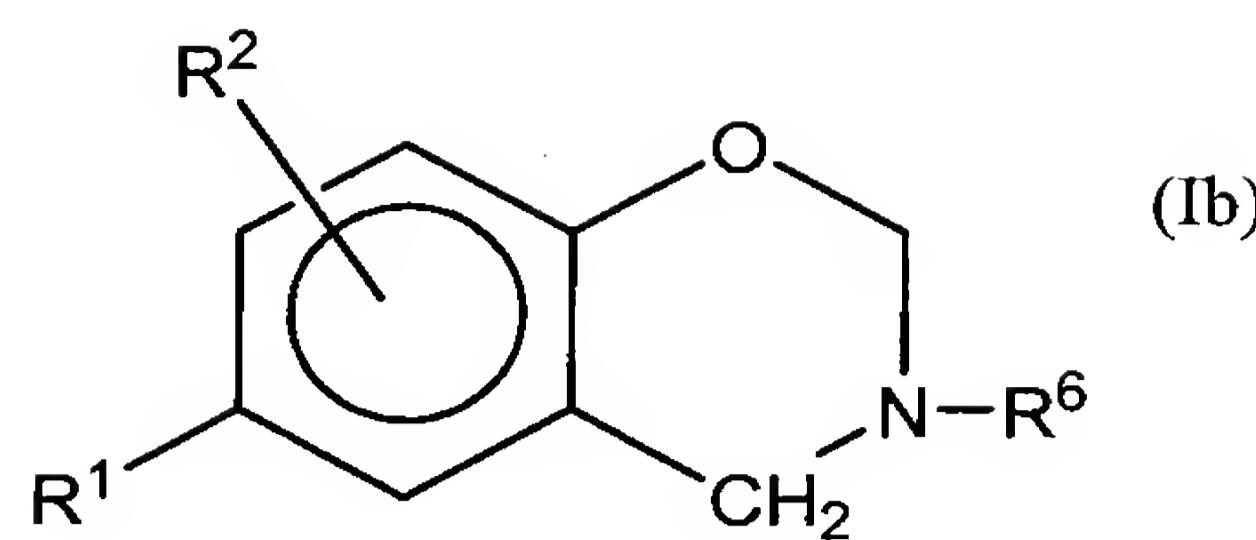
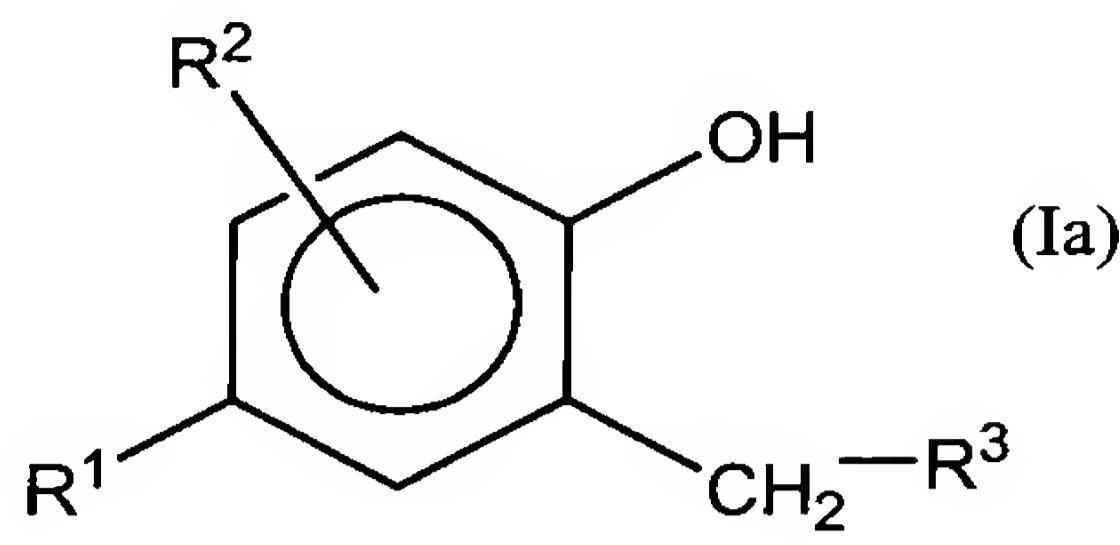
Claims 1-92 (Canceled).

Claim 93 (Previously Presented): A process for the preparation of polyisobutarylphenol-containing Mannich adducts, comprising:

- a) alkylating a phenol with a highly reactive polyisobutene having a vinylidene double bond content of more than 70 mol%, a number average molecular weight of less than 900, and a polydispersity of less than 3.0 at below about 50°C, wherein the alkylating is carried out in the presence of an alkylation catalyst to form a reaction product; and
- b) reacting the reaction product from a) with
 - b1) at least one aldehyde selected from the group consisting of formaldehyde, an oligomer of formaldehyde and a polymer of formaldehyde, and
 - b2) at least one amine of the formula NHR^4R^5 where R^4 and R^5 are C_1 - to C_{20} alkyl radicals.

Claim 94 (Previously Presented): The process as claimed in claim 93, wherein the amine reacted with the reaction product is at least one selected from the group consisting of dimethylamine and diethylamine.

Claim 95 (Currently Amended): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising at least 40 mol% of at least one compound selected from the group consisting of formula (Ia) and (Ib),

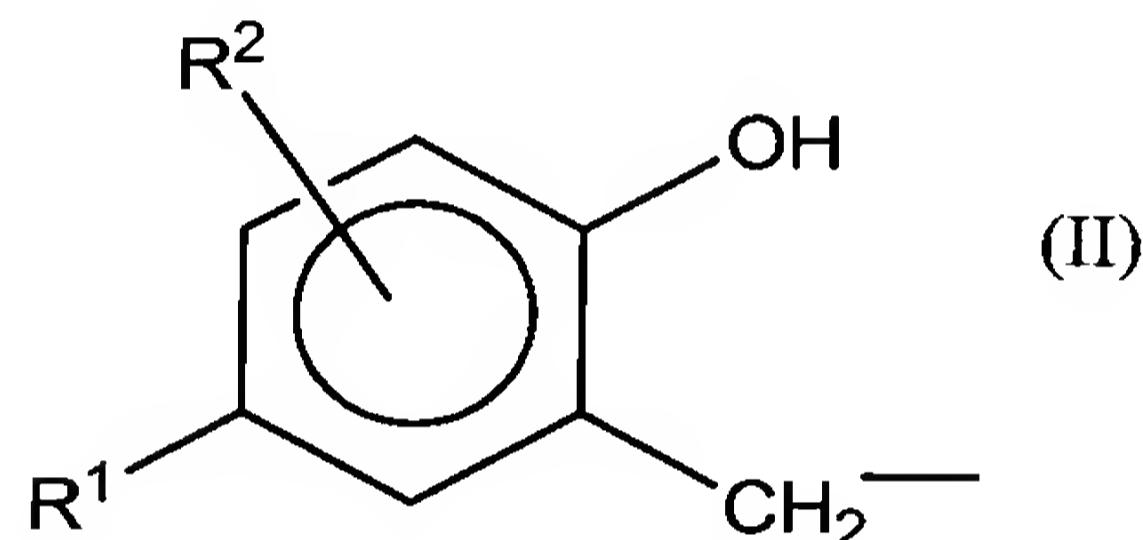


wherein

R¹ is a terminally bonded polyisobut enyl radical,

R² is H, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, hydroxyl, a polyalkylenyl radical or CH₂NR⁴R⁵, where R⁴ and R⁵ have the meanings stated below, and

R³ is NR⁴R⁵, where R⁴ and R⁵, independently of one another, are selected from the groups consisting of C₁- to C₂₀-alkyl radicals and phenol radicals of the formula II



where R¹ and R² are as defined above;

with the proviso that R⁴ and R⁵ are not simultaneously [[H or]] phenol radicals of the formula II; or R⁴ and R⁵, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two heteroatoms selected from the group consisting of N and O and may be substituted by one, two or three C₁- to C₆-alkyl radicals; and

R⁶ is a radical R⁴ or R⁵ other than H.

Claim 96 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct having a polydispersity of from 1.1 to 3.5.

Claim 97 (Previously Presented); The process as claimed in claim 96, further comprising:

fractionating the reaction mixture from b) by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon, and then
- at least one basic alcohol/water mixture.

Claim 98 (Previously Presented): The process as claimed in claim 97, wherein the basic alcohol/water mixture comprises:

- a) from 75-99.5% by weight of at least one C₂- to C₄-alcohol,
- b) from 0.4-24.4% by weight of water, and
- c) from 0.1-15% by weight of at least one amine which is volatile at room temperature.

Claim 99 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising up to 20 mol% of one or more polyisobutetyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 100 (Previously Presented): The process as claimed in claim 93, wherein the reacting is carried out to form an adduct mixture comprising from 1-15 mol% of one or more polyisobutetyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 101 (Previously Presented): A Mannich adduct obtained by the process as claimed in claim 93.

Claim 102 (Previously Presented): A Mannich adduct obtained by the process as claimed in claim 95, wherein the Mannich adduct comprises at least 40 mol% of one or more compounds of formula Ia and Ib.

Claim 103 (Previously Presented): A fuel and/or lubricant composition comprising a detergent effective amount of the Mannich adduct claimed in claim 101.

Claim 104 (Previously Presented): An additive concentrate, comprising:
one or more conventional additive components, and at least one Mannich adduct as claimed in claim 101 in an amount of from 0.1 to 99% by weight.

Claim 105 (Previously Presented): An additive concentrate, comprising:
one or more conventional additive components, and
at least one Mannich adduct claimed in claim 101 in an amount of from 0.5 to 80% by weight.

Claim 106 (Previously Presented): A fuel composition, comprising:
a major amount of at least one liquid hydrocarbon fuel, and
at least one adduct as claimed in claim 101 in a detergent active effective amount.

Claim 107 (Previously Presented): A lubricant composition, comprising:
a major amount of at least one of a liquid lubricant, a semisolid lubricant and a solid lubricant, and
at least one adduct as claimed in claim 101 in a detergent active effective amount.

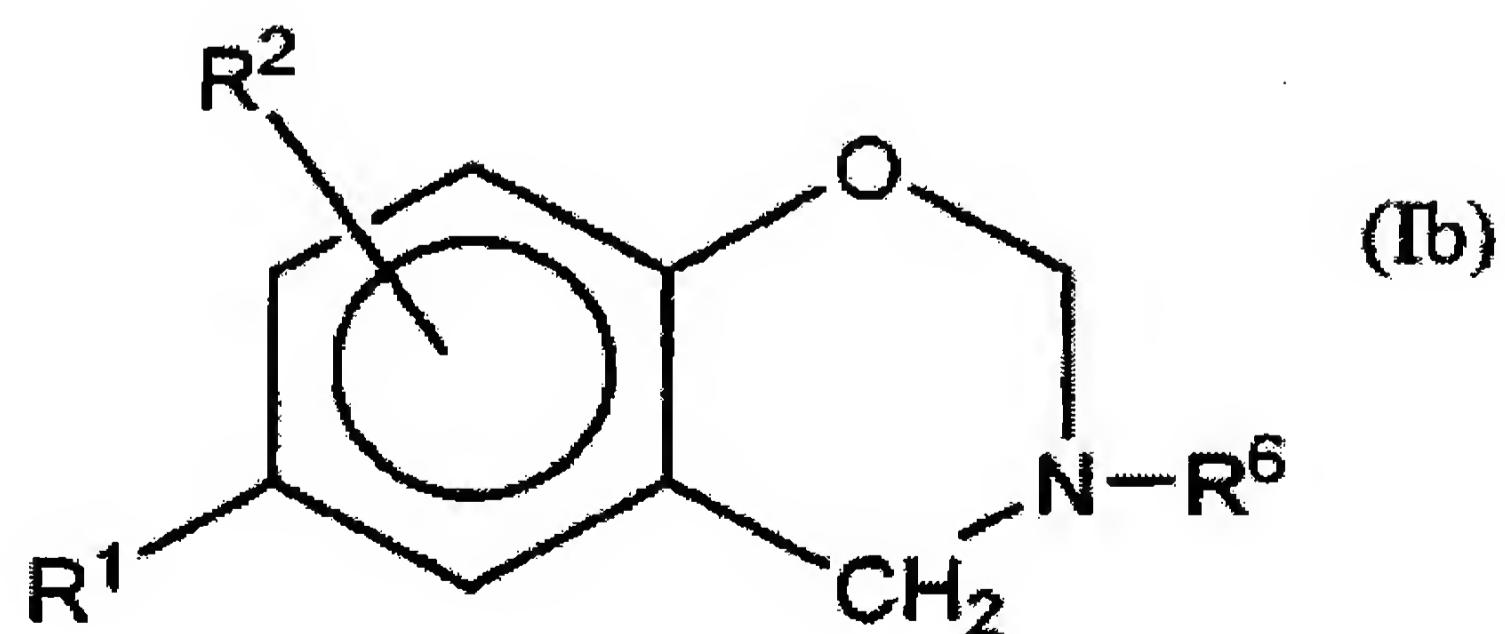
Claim 108 (Previously Presented): A gasoline or diesel fuel, comprising:
the fuel composition claimed in claim 106.

Claim 109 (Previously Presented): The process as claimed in claim 93, wherein R1 has a number average molecular weight of from 300 to 850.

Claim 110 (Previously Presented): The process as claimed in claim 95, wherein R³ is NR⁴R⁵ wherein R⁴ and R⁵, independently of one another, are C₁- to C₂₀-alkyl radicals.

Claim 111 (Currently Amended): A process for the preparation of polyisobutetylphenol-containing Mannich adducts, comprising:

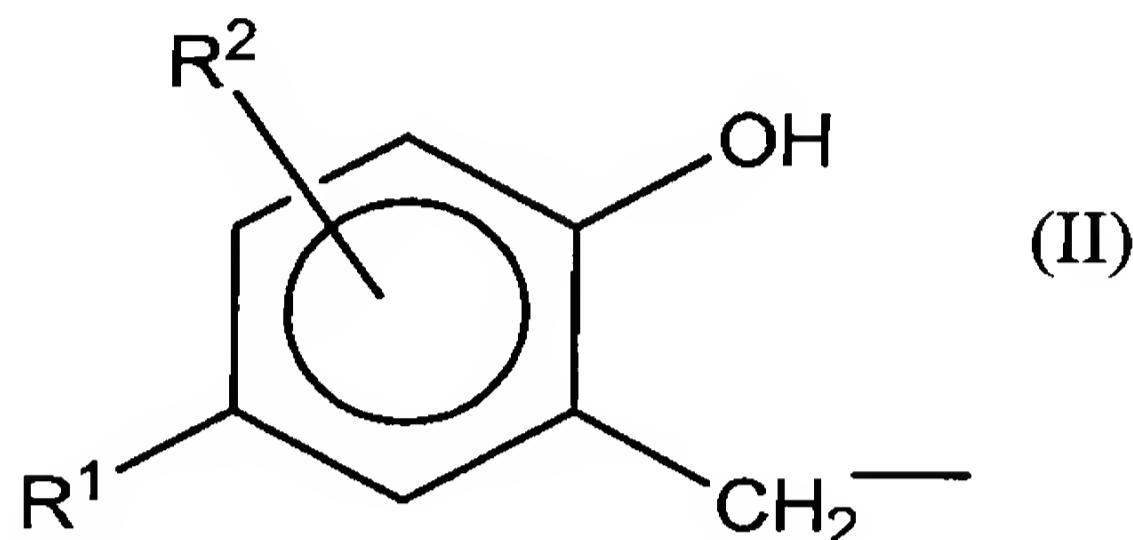
- a) alkylating a phenol with a highly reactive polyisobutene having a vinylidene double bond content of more than 70 mol%, a number average molecular weight of less than 900, and a polydispersity of less than 3.0 at below about 50 °C, wherein the alkylating is carried out in the presence of an alkylation catalyst to form a reaction product; and
- b) reacting the reaction product from a) with
 - b1) at least one aldehyde selected from the group consisting of formaldehyde, an oligomer of formaldehyde and a polymer of formaldehyde, and
 - b2) at least one amine of the formula NHR⁴R⁵ where R⁴ and R⁵ are H or C₁- to C₂₀ alkyl radicals, to form an adduct mixture comprising at least at least one compound of formula (Ib)



wherein

R^1 is a terminally bonded polyisobut enyl radical;

R^2 is H, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, hydroxyl, a polyalkylenyl radical or CH₂NR⁴R⁵, where R⁴ and R⁵, independently of one another, are selected from the groups consisting of hydrogen, C₁- to C₂₀-alkyl radicals and phenol radicals of the formula II



with the proviso that R⁴ and R⁵ are not simultaneously H or phenol radicals of the formula II; or R⁴ and R⁵, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two heteroatoms selected from the group consisting of N and O and may be substituted by one, two or three C₁- to C₆-alkyl radicals; and

R^6 is a radical R⁴ or R⁵ other than H.

Claim 112 (Previously Presented): The process as claimed in claim 111, wherein the amine reacted with the reaction product is at least one selected from the group consisting of dimethylamine and diethylamine.

Claim 113 (Previously Presented): The process as claimed in claim 111, wherein the reacting is carried out to form an adduct mixture comprising at least 40 mol% of the compound of formula (Ib).

Claim 114 (Previously Presented): The process as claimed in claim 111, wherein the reacting is carried out to form an adduct having a polydispersity of from 1.1 to 3.5.

Claim 115 (Previously Presented): The process as claimed in claim 111, wherein the reacting is carried out to form an adduct mixture comprising up to 20 mol% of one or more polyisobut enyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 116 (Previously Presented): The process as claimed in claim 111, wherein the reacting is carried out to form an adduct mixture comprising from 1-15 mol% of one or more polyisobut enyl phenols formed by the alkylating and which are not reacted in the reacting.

Claim 117 (Previously Presented): A Mannich adduct obtained by the process as claimed in claim 111.

Claim 118 (Previously Presented): A fuel and/or lubricant composition comprising a detergent effective amount of the Mannich adduct claimed in claim 117.

Claim 119 (Previously Presented): An additive concentrate, comprising:
one or more conventional additive components, and at least one Mannich adduct as claimed in claim 117 in an amount of from 0.1 to 99% by weight.

Claim 120 (Previously Presented): An additive concentrate, comprising:
one or more conventional additive components, and
at least one Mannich adduct claimed in claim 117 in an amount of from 0.5 to 80% by weight.

Claim 121 (Previously Presented): The process according to claim 111, wherein R² is at least one of H and hydroxyl.

Claim 122 (Previously Presented): The process according to claim 111, wherein R² is at least one of a C₁- to C₂₀-alkyl group, a C₁- to C₂₀-alkoxy group and a polyalkylenyl radical.

Claim 123 (New): The process as claimed in claim 93, wherein the highly reactive polyisobutene has a uniform polymer backbone of at least 95% by weight isobutene units.

Claim 124 (New): The process according to claim 93, wherein the reaction product formed in step (a) is a phenol substituted with a polyisobutene group having a number average molecular weight of less than 750.

Claim 125 (New): The process according to claim 93, further comprising:
mixing the polyisobutetyl phenol-containing Mannich adduct with a gasoline fuel to form a composition that is free of polyolefin polymers.

Claim 126 (New): The process according to claim 93, wherein the amine is a monoamine.

Claim 127 (New): The process according to claim 93, further comprising:
fractionating the reaction mixture formed in step (b).

Claim 128 (New): The process as claimed in claim 111, wherein the highly reactive polyisobutene has a uniform polymer backbone of at least 95% by weight of isobutene.

Claim 129 (New): The process according to claim 111, wherein the reaction product formed in step (a) is a phenol substituted with a polyisobutene group having a number average molecular weight of less than 750.

Claim 130 (New): The process according to claim 111, further comprising:
mixing the polyisobutetyl phenol-containing Mannich adduct with a gasoline fuel to form a composition that is free of polyolefin polymers.

Claim 131 (New): The process according to claim 111, wherein the amine is a monoamine.

Claim 132 (New): The process according to claim 111, further comprising:
fractionating the reaction mixture formed in step (b).

Claim 133 (New): The process according to claim 93, wherein the highly reactive polyisobutene has a polydispersity of from 2.5 to less than 3.0.

Claim 134 (New): The process according to claim 111, wherein the highly reactive polyisobutene has a polydispersity of from 2.5 to less than 3.0.